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# Intention to leave the workplace among nurses working with cancer patients in acute care hospitals in Sweden



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## A B S T R A C T

### Keywords:

Oncology nursing  
Leadership  
Intention to leave  
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RN4CAST  
Workforce  
Organization

**Purpose:** To examine associations between perceived leadership and intention to leave the workplace due to job dissatisfaction among registered nurses (RNs) who care for patients with cancer. We also examine intention to leave in relation to proportion of cancer patients, length of time in practice, perceived adequacy of cancer care education, and burnout.

**Methods and sample:** The data originated from the Swedish component of RN4CAST, based on a survey of RNs working with in-patient care in all acute care hospitals in Sweden. The 7412 RNs reporting  $\geq 10\%$  patients with cancer on their unit were included in this analysis. Data were collected on perceptions of work environment, burnout, future employment intentions, and demographic characteristics. Additional questions related to cancer care.

**Key results:** About 1/3 of all RNs intended to leave their workplace within the next year. Intention to leave was more prevalent among RNs reporting less favourable perceptions of leadership, who had worked  $\leq$  two years as RN, who reported having inadequate cancer care education, and with higher burnout scores. Associations between leadership and intention to leave were stronger among RNs in the profession  $>$  two years, who reported having adequate cancer care education, and with lower burnout scores.

**Conclusions:** Perception of leadership is strongly associated with intention to leave among RNs in both specialized and general cancer care. This suggests a crucial area for improvement in order to reduce turnover rates.

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## Introduction

With both an ageing world population and nursing work force, high turnover among registered nurses (RNs) is a global concern. Health care organizations need to keep turnover rates down to

ensure continuity and deliver high quality care. Employers need to invest substantial time and money (e.g. on advertising, recruitment and training) to replace RNs who leave (Li and Jones, 2013). High turnover in health care is costly, but has been described as most expensive with regard to RNs, with an estimated cost of  $>5\%$  of an organization's budget (Waldman et al., 2004). Nursing shortages and high turnover rates are common reasons for closing hospital units and delaying treatments, with serious consequences for timely and high quality care, and patient safety (Bae et al., 2010).

As cancer rates increase, treatments become more complex, and the number of cancer survivors grows ([www.who.int/mediacentre/news](http://www.who.int/mediacentre/news)), the demand for RNs with education and skills that are appropriate to meet the care needs of people affected also escalates (EONS, 2013). It is therefore crucial to generate knowledge on factors that might contribute to diminishing the intention to leave the workplace among RNs working with cancer care.

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*Intention to leave* or *turnover intention* has been described as an employee's willingness or attempts to voluntarily leave their workplace (Takase, 2010). Intention to leave is therefore antecedent to actually leaving and has been described as a process with psychological, cognitive and behavioural stages (Homburg et al., 2013; Takase, 2010). The intention to leave process changes over time and has been found to vary in intensity and probability due to organizational factors (i.e. status, climate, culture, support, nurse–physician relationships and leadership), work-related factors (workload, stress, autonomy, salaries, shift work, power, and possibility to impact) and demographic factors (age, years of experience, and area of work) (Galletta et al., 2013; Kelly et al., 2011; Laschinger, 2012; Nelsey and Brownie, 2012; Takase, 2010). External factors, such as conflict between work and family obligations may also affect intention to leave (Takase, 2010).

There are other reasons for differences in rates of RN turnover. General nursing shortages result in job opportunities that might encourage RNs to consider changing jobs. However, financial pressure may lead health care organizations to cut back on RN positions, which might reduce turnover rates (Brewer et al., 2012).

The impact of leadership on nursing turnover is well established (Coomber and Barriball, 2007; Cummings et al., 2010; Galletta et al., 2013; Kleinman, 2004; Laschinger, 2012; Nelsey and Brownie, 2012). Research has shown that changes in leadership (e.g. improved communication, coaching, partnership and collaboration between managers and nurses) have been able to reduce RN turnover rates considerably (Shermont and Krepcio, 2006). However, the correlation between *intention to leave* and leadership is not as well described, even if Galletta et al. (2013) recently found that relations between RNs and managers impact on intention to leave. Coomber and Barriball (2007) conclude in their review article that leadership influences intention to leave more than individual factors do.

### Cancer nursing

In cancer care, many nurses have complex work environments in which they encounter life-threatening disease, difficult patient and family situations, and people in severe distress. These factors are known to contribute to job dissatisfaction, stress and burnout (Barrett and Yates, 2002; Potter et al., 2010). However, based on their integrative review on the context of oncology nursing practice, Bakker et al. (2013) argue that RNs in cancer care also find their work especially rewarding and meaningful, due to close relationships and a sense of being able to impact on patients' lives. These circumstances were found to increase cancer nurses' *intention to stay*, even in light of difficult working conditions (e.g. inadequate staffing and leadership). In their systematic review, Toh et al. (2012) describe several reasons for job dissatisfaction, burnout and stress, which increase turnover rates among RNs working in oncology and haematology. Inadequate staffing was reported as an important factor for leaving the specialty, especially in in-patient care and in non-magnet hospitals. Toh et al. point to the risk of a vicious circle in oncology settings, where RN shortages lead to insufficient staffing that can increase both workload and work dissatisfaction, resulting in even higher turnover rates.

On the other hand, better working conditions for RNs (e.g. low levels of stress and burn-out, nurse autonomy) have been described as having a direct positive impact on both patient satisfaction and safety, as well as reducing RN turnover rates, in general as well as in cancer care (Aiken and Patrician, 2000; Bakker et al., 2013; Cummings et al., 2008).

In this article, our focus is on RNs working with patients with cancer, with particular interest in those who report intention to leave their present workplace at an acute care hospital's inpatient unit due to job dissatisfaction. There are factors that may be

susceptible to change which may make it possible to retain a significant proportion of these RNs; in this article we aim to examine some of these factors, including the relationship between RNs' intention to leave their workplace and perceived leadership. We also examine intention to leave in relation to proportion of cancer patients on the RN's unit, length of time in practice, perceived adequacy of education related to cancer care, and burnout. Finally, we examine potential modifying effects of these factors on the association between leadership and intention to leave.

### Methods

The data analysed here derive from the Swedish component of the EU 7th framework-funded RN4CAST project. This collaborative nursing workforce study involving 16 countries worldwide included a nurse survey, an optional patient survey (not carried out in Sweden) and an organizational survey ([www.rn4cast.eu/en/index.php](http://www.rn4cast.eu/en/index.php)) and has been described in depth elsewhere (Aiken et al., 2014; Lindqvist et al., 2015; Sermeus et al., 2011). The primary aim of RN4CAST was to introduce innovative workforce forecasting methods addressing characteristics of both nursing staff and work environment with attention given to effects on patient care (Sermeus et al., 2011). Prior to initiation of the Swedish component of RN4CAST presented here, approval was granted by the regional Ethical Review Board (KI Dnr 2009/1587-31/5).

In this study, we use data from a 118-item survey of RNs assessing their perception of their work environment, burnout, job satisfaction, future employment intentions, quantity and quality of care, and staffing levels. The survey tool consisted mainly of items from commonly used and validated instruments (Aiken and Patrician, 2000; Lake, 2002; Li et al., 2007; Maslach and Jackson, 1981), complemented with demographic data. The final section of the Swedish survey was unique, consisting of questions specific to the Swedish context, and included questions related to cancer care (see Box 1) to allow us to examine workplace issues in relation to cancer care in acute care hospitals.

Survey participants were clinically active RNs who worked directly with adult in-patients in medical/surgical care in acute care hospitals. The Swedish sample was recruited using the member register of the Swedish Association of Health Care Professionals, with >80% of all clinically active RNs in the country then registered as members (Swedish Association of Health Professionals, Per Malmquist, personal correspondence Feb 1, 2011). Statistics Sweden distributed the postal survey to all member RNs registered as working in medical/surgical departments (N = 33 083) from January–March 2010, with the option of answering by web or paper. Since the member register did not contain information about the specific function of RNs or involvement in in-patient versus out-patient care, this strategy involved a deliberate over-recruitment. The response rate was 69.8% (n = 23 087) after three reminders. Using survey information designed to target inclusion criteria, 12 072 of the responding RNs were excluded (due to working with out-patient care, with positions only entailing administration, in intensive care, psychiatric or pediatric units, etc.) for a study database of 11 015 respondents from all acute care hospitals in Sweden.

For the present analyses, we first determined the sub-sample of 8655 RNs (80%) who reported caring for patients with cancer on their in-patient unit. Those RNs with missing data on the question on proportion of patients with cancer (see Box 1) were excluded, leaving 7412 RNs in the sample. These were further divided into two groups; one group consists of 1440 RNs who indicated that they either worked on a specialized oncology unit or that ≥80% of patients on their unit during their last shift had a cancer diagnosis (called specialized cancer care (SCC) group). The second group

**Box 1**

Cancer-related questions specific for the Swedish version of the RN4CAST-survey.

**1. During your last shift, approximately what proportion of patients in your unit...**

**a. were cared for primarily due to a cancer disease?**  
(0, 10%, 20%... 90%, 100%)

**b. had a cancer diagnosis but were cared for primarily due to another condition/disease?** (0, 10%, 20%... 90%, 100%)

**2. Are patients with cancer usually cared for on your unit?** (Yes/No)

**If Yes:**

**3. Which of the following phases of cancer are generally found among patients on your unit?**

*Choose all relevant options*

- a) Diagnostic work-up
- b) Initial treatment (incl. surgery, radiotherapy and chemotherapy)
- c) Relapse treatment
- d) Treatment complication
- e) Early palliative care/supportive care
- f) Late palliative care/end-of-life care
- g) Treated for reasons other than cancer

**4. To what extent do you feel that your education in cancer care is adequate for what you do in your job?** (A very high extent, A high extent, Partly, A low extent, A very low extent, I don't have any cancer care education at all)

consists of RNs who reported that 10–70% of patients on their unit during their last shift had a cancer diagnosis ( $n = 5972$ ), here called general cancer care (GCC) group.

#### *Explanatory variables*

The primary explanatory factor is related to *nurses' assessment of leadership*. Individual items of the Practice Environment Scale of the

Nursing Work Index-Revised (PES-NWI) (Aiken and Patrician, 2000; Lake, 2002; Li et al., 2007) included in the survey were reviewed by the multi-disciplinary research group to assess their relevance to leadership. The five items shown in Box 2 were chosen to instrumentalize leadership. These leadership aspects were rated on a four point scale from 1 = Strongly disagree to 4 = Strongly agree. The first four items are included in the leadership dimension of the PES-NWI (Lake, 2002), whereas Lake et al. categorized the

**Box 2**

Leadership questions.

**Please indicate the extent to which you agree that each of the following features is present in your current job:**

1. A supervisory staff that is supportive of nurses
2. A nurse manager who is a good manager and leader
3. Praise and recognition for a job well done
4. A nurse manager who backs up the nursing staff in decision making, even if the conflict is with a physician
5. Management that listens and responds to employee concerns

**(1=Strongly disagree, 2=Somewhat disagree, 3=Somewhat agree, 4=Strongly agree)**

last item in a dimension reflecting nurses' impact on hospital affairs. Our aim was to capture general aspects of leadership, but the term itself was not specifically used or defined in the questionnaire.

We also studied the effect *length of time in practice* (total number of years working as RN), *perceived adequacy of cancer care education*, and *burnout* had on the association between assessed leadership and intention to leave the workplace. Our a priori assumption, based on our combined professional experience and ad hoc anecdotal data, was that those RNs who had been in the profession for a shorter period of time and those RNs who did not perceive their cancer care education to be adequate would be more vulnerable to bad leadership, and that we would find a stronger association between leadership and intention to leave in these groups of RNs.

Length of time in practice was analysed both as a continuous variable and as a dichotomized variable, with less experienced defined as having two years or less of experience as a RN. This cut-off point was pragmatic, to allow a degree of experience, but de facto exclude most of those RNs with post-graduate specialization. Perceived adequacy of cancer care education was also assessed, as shown in [Box 1](#). It should however be noted that we did not assess if the RNs had post-graduate oncology nursing specialist education.

The 22-item Maslach Burnout Inventory (MBI-HSS) ([Maslach and Jackson, 1993](#)) was used to assess burnout in three subscales – *emotional exhaustion* (EE, 9 items), measuring feelings of overwhelming exhaustion and depletion of personal resources; *depersonalisation* (DP, 5 items), examining indifference to needs of others, cynicism, and detachment; and *personal achievement* (PA, 8 items), encompassing feelings of competence, achievement and productivity at work. Respondents rated each item on a seven-point Likert-type scale for how frequently the feeling was experienced (0 = “Never”, 6 = “Every day”). Higher scores on the EE and DP subscales correspond with higher degrees of burnout, whereas PA is inversely correlated with burnout. The Cronbach's alpha coefficients for the MBI-HSS in this study were: 0.89 for EE, 0.75 for DP, and 0.76 for PA. We analysed the subscales separately as both continuous and categorical variables. Summary scores for the subscales were achieved by adding the individual item scores and imputing mean values for missing scores if a maximum of two items were missing for EE and PA and one item was missing for DP. The cut-off points for the different categories (low/moderate/high) of each subscale were defined by the tertiles in the current sample of RNs (based on [Schaufeli and Van Dierendonck \(1995\)](#)). Furthermore, we created a combined burnout variable (based on [Brenninkmeijer and VanYperen, 2003](#)). Respondents were categorized as measuring higher on burnout if they were ranked high on EE and one or both of the following: high on DP and low on PA.

#### Outcome variable

The outcome variable *Intention to leave the workplace* is based on dichotomous responses (yes/no) to the survey question: “If possible, would you leave your current hospital within the next year as a result of job dissatisfaction?” This question was followed-up with the question, (only used in the descriptive analysis): “If yes, what type of work would you seek?” with the response options: “Nursing in another hospital”; “Nursing, but not in a hospital”; “Non-nursing”.

#### Statistical analysis

Characteristics of the sample are presented with descriptive statistics. Chi square and T-tests were used to estimate statistical significance. Spearman correlation coefficients were used to investigate collinearity between the leadership items. Moderate positive correlations were found among the five leadership items,

with correlation coefficients ranging between 0.34 and 0.60. The strongest correlations were found between having a supervisory staff that is supportive of nurses and having a management that listens and responds to employee concerns (0.60) and between having a nurse manager who is a good manager and leader and having a nurse manager who backs up the nursing staff in decision making, even if the conflict is with a physician (0.56). Praise and recognition for a job well done was the item least strongly correlated with the other leadership aspects. To avoid issues of multicollinearity we chose to investigate each leadership item separately rather than as a combined variable.

Prevalence ratios (PR) and 95% confidence intervals (CI) were used to estimate the effects of assessed leadership on intention to leave the workplace, and were calculated using a binomial generalized linear model with log link. Bivariate regression models were computed for each of the leadership items. Possible confounding, by socio-demographic factors (age and sex), structural work-related factors (full/part time, urban/rural hospital, university/non-university hospital, and hospital size) and burnout, was examined in each model. Interaction terms were included to test effect modification by proportion of cancer patients, length of time in practice, perceived adequacy of cancer care education, and burnout. Data were analysed using SAS 9.3, and IBM SPSS Statistics 20.

#### Results

The total sample was composed of 7412 RNs caring for cancer patients at all 80 acute care hospitals in Sweden. Socio-demographic and work-related characteristics among these RNs are presented in [Table 1](#). A number of statistically significant differences were found between the SCC and GCC groups. A larger proportion of SCC RNs worked full-time, in urban, university and/or large hospitals, and had been in the profession for a shorter period of time (average 10.5 vs. 11.4 years in the GCC RNs,  $p < 0.01$ ). Slightly over 40% of SCC RNs agreed that they had adequate cancer care education for the jobs they actually do, compared to 20% of GCC RNs.

As shown in [Table 2](#), there was no difference in intention to leave the workplace between the two groups, with just over one third reporting intending to leave in both. Among these, 80% intended to leave for another nursing position, and it was less likely that SCC RNs reported intending to leave the nursing profession compared to GCC RNs ( $p < 0.001$ ). Among RNs intending to leave their workplace, the average number of years in the profession was 9.7 (SD = 9.0), compared to 11.9 (SD = 10.7) among those not intending to leave ( $p < 0.001$ ) (data not shown).

Responses to leadership statements did not generally differ substantially between the SCC and GCC groups, although a lower proportion of GCC RNs agreed that ‘you receive praise and recognition for a job well done’ (45% vs. 48%,  $p < 0.05$ ), and that ‘the management listens and responds to employee concerns’ (35% vs. 37%,  $p < 0.05$ ). Burnout ratings differed between the SCC and GCC groups only in that the average score on depersonalization was higher among GCC RNs (4.6 vs. 4.0,  $p < 0.001$ ).

Among RNs who agreed that they had adequate cancer care education, the average number of years in the profession was 15.3 (SD = 11.2) years, compared to 9.8 (SD = 9.5) years among those who did not agree (data not shown). When examining perceived adequacy of cancer care education by each increasing year in the profession, we found that the majority of RNs who had been in the nursing profession less than eight years did not report having adequate cancer care education, whereas the majority of RNs working nine years or more reported having adequate cancer care education (data not shown).



**Table 1**  
Descriptive characteristics of the sample of RNs with cancer patients from RN4CAST (Sweden, 2010).

|                                   | SCC group<br>(≥80% cancer<br>patients)<br>(n = 1440)<br>N (%) | GCC group<br>(10–70% cancer<br>patients)<br>(n = 5972)<br>N (%) | p-value             |
|-----------------------------------|---|---|---------------------|
| Males                             | 72 (5.0)  | 374 (6.3)   | 0.071               |
| Females                           | 1368 (95.0)   | 5598 (93.7)   |                     |
| Age group (range: 22–67 yrs)      |   |   |                     |
| 22–29                             | 299 (20.8)  | 1186 (19.9)   |                     |
| 30–39                             | 506 (35.1)  | 1996 (33.4)   |                     |
| 40–49                             | 328 (22.8)  | 1391 (23.3)   |                     |
| 50–59                             | 227 (15.8)  | 1032 (17.3)   |                     |
| 60–67                             | 80 (5.6)  | 367 (6.1)   |                     |
| Mean age (SD)                     | 39.7 (10.8)   | 40.3 (11.0)   | 0.112               |
| Fulltime                          | 903 (63.1)  | 3488 (58.6)   | 0.002               |
| Part time                         | 529 (36.9)  | 2465 (41.4)   |                     |
| Missing                           | 8   | 19  |                     |
| Urban hospital                    | 498 (34.6)  | 1488 (24.9)   | <0.001              |
| Rural hospital                    | 942 (65.4)  | 4484 (75.1)   |                     |
| University hospital               | 770 (53.5)  | 1838 (30.8)   | <0.001              |
| Non-university hospital           | 670 (46.5)  | 4134 (69.2)   |                     |
| Small hospital                    | 135 (9.4)   | 1422 (23.8)   | <0.001 <sup>a</sup> |
| Medium sized hospital             | 442 (30.7)  | 2032 (34.0)   |                     |
| Large hospital                    | 863 (59.9)  | 2518 (42.2)   | <0.001 <sup>b</sup> |
| ≤2 years in profession            | 266 (18.6)  | 996 (16.8)  | 0.094               |
| >2 years in profession            | 1163 (81.4)   | 4949 (83.2)   |                     |
| Missing                           | 11  | 27  |                     |
| Mean number of years (SD)         | 10.5 (9.8)  | 11.4 (10.3)   | 0.007               |
| Adequate cancer care education    |   |   |                     |
| To high degree                    | 565 (40.6)  | 1156 (19.7)   | <0.001              |
| Partly or to low degree           | 827 (59.4)  | 4718 (80.3)   |                     |
| Missing                           | 48  | 98  |                     |
| Phase of cancer care <sup>c</sup> |   |   |                     |
| Diagnostic work-up                | 1212 (89.6)   | 4931 (87.5)   | 0.036               |
| Initial treatment                 | 1208 (89.2)   | 2696 (50.5)   | <0.001              |
| Relapse treatment                 | 1257 (92.6)   | 2940 (55.3)   | <0.001              |
| Treatment complication            | 1280 (94.5)   | 3909 (71.9)   | <0.001              |
| Early palliative/supportive care  | 1304 (95.9)   | 4397 (79.8)   | <0.001              |
| Late palliative/end-of-life care  | 1170 (87.3)   | 3671 (68.0)   | <0.001              |

<sup>a</sup> Small hospital vs. medium and large.

<sup>b</sup> Large hospital vs. medium and small.

<sup>c</sup> Options are not mutually exclusive.

Distributions of descriptive, predictive and outcome variables by intention to leave are presented in Table 3. A higher prevalence of intention to leave was found among RNs who were younger, who worked in urban and/or large hospitals, who had been in the profession two years or less, and who did not perceive having adequate cancer care education for their jobs. Furthermore, a higher likelihood of intending to leave was found among RNs reporting less favourable views of leadership, and with higher burnout-related scores.

All leadership variables were strongly associated with intention to leave in the bivariate analysis, as presented in Table 4. The strongest association was found for the item 'the supervisory staff is supportive of nurses', where those who disagreed had almost a threefold higher risk of reporting intention to leave (PR = 2.66, 95% CI: 2.48–2.85). When stratifying by proportion of cancer patients, very similar estimates were identified in the SCC and GCC groups. Adjusting for any or all of the socio-demographic variables (age, sex), hospital variables (urban/rural, university/non-university,

hospital size), or full-/part-time work did not appreciably affect the associations between leadership and intention to leave; we therefore did not adjust for these factors in the regression analyses. Adjusting for proportion of cancer patients did not affect these associations either.

When examining interactions, we found no statistically significant effects between proportion of cancer patients and leadership. For length of time in practice (categorical: ≤2 years vs. longer) there were statistically significant interactions with all but one leadership item: 'You receive praise and recognition for a job well done'. As a continuous variable, length of time in practice modified the effect of all leadership items on intention to leave such that the longer RNs had worked, the more likely they were to intend to leave their workplace when having a less favourable view of leadership. Adequacy of cancer care education interacted to a statistically significant degree with three of the leadership items: 'The supervisory staff is supportive of nurses', 'The nurse manager is a good manager and leader', and 'The nurse manager backs up the nursing staff in decision making, even if the conflict is with a physician'. When stratifying the sample by length of time in practice and perceived adequacy of cancer education, as seen in Table 5, there were strong associations between perceived leadership and intention to leave in all strata, but higher prevalence ratios were found among RNs who had been in the profession longer (>2 years) and among those who perceived that they had adequate cancer care education.

When investigating if burnout had an effect on the association between leadership and intention to leave, as shown in Table 6, we found that burnout confounded this association to a statistically significant degree. However, a strong independent effect of leadership on intention to leave remained even after adjusting for burnout. Statistically significant interaction effects between burnout and all leadership items were also found. Those RNs who reported lower scores on the burnout scales were more likely to report intention to leave if they had an unfavourable assessment of leadership, compared to RNs with higher burnout scores (Table 6).

## Discussion

In this Swedish sample of RNs who care for patients with cancer recruited from all acute care hospitals in Sweden, about 1/3 reported intention to leave their current position within the next year as a result of job dissatisfaction, both among those working in specialized and general cancer care. Intention to leave was more prevalent among RNs who were relatively new to the profession, who did not perceive having adequate cancer care education, and who had higher burnout-related scores. A strong association was found between perception of leadership and intention to leave the workplace, with a higher likelihood of intending to leave among those reporting less favourable perceptions of leadership. This association was stronger among more experienced RNs, RNs who perceived their cancer care education to be adequate, and who had lower ratings on the burnout scale. However, proportion of cancer patients on the RN's unit was not found to modify this association. Controlling for other variables (length of time in practice, perceived adequacy of cancer care education, proportion of cancer patients on the RN's unit, burnout, socio-demographic or hospital variables) did not appreciably change the association between leadership and intention to leave.

As cancer nursing is often conceptualized as occurring only on specialized oncology/haematology units, there is a lack of comparable data to that presented here. Shang et al. (2013) compared job satisfaction and burnout between oncology RNs and medical-surgical RNs in three states in the US, finding that oncology RNs reported less burnout and intention to leave. However, they do not clarify if the medical-surgical units also included cancer care. In our

**Table 2**

Distribution of predictive and outcome variables of interest among RNs with cancer patients from RN4CAST (Sweden, 2010).

| Variable   | SCC group<br>(≥80% cancer patients)<br>(n = 1440)<br>N (%) | GCC group<br>(10–70% cancer patients)<br>(n = 5972)<br>N (%) | p-value |
|--|--|--|---------|
| Intention to leave   |  |  |         |
| Yes  | 497 (34.8)   | 2029 (34.4)  | 0.755   |
| No   | 931 (65.2)   | 3875 (65.6)  |         |
| Missing  | 12   | 68   |         |
| Intend to leave...   |  |  |         |
| For other nursing position   | 401 (85.7)   | 1487 (78.2)  | <0.001  |
| Nursing profession   | 67 (14.3)  | 415 (21.8)   |         |
| Missing  | 29   | 127  |         |
| 1. The supervisory staff is supportive of nurses   |  |  | 0.056   |
| Agree  | 839 (58.1)   | 3257 (55.4)  |         |
| Disagree   | 606 (41.9)   | 2621 (44.6)  |         |
| Missing  | 15   | 94   |         |
| 2. The nurse manager is a good manager and leader  |  |  | 0.355   |
| Agree  | 1006 (71.3)  | 4287 (72.6)  |         |
| Disagree   | 404 (28.7)   | 1620 (27.4)  |         |
| Missing  | 30   | 65   |         |
| 3. You receive praise and recognition for a job well done  |  |  | 0.035   |
| Agree  | 682 (48.0)   | 2652 (44.9)  |         |
| Disagree   | 738 (52.0)   | 3252 (55.1)  |         |
| Missing  | 20   | 68   |         |
| 4. The nurse manager backs up the nursing staff in decision making, even if the conflict is with a physician |  |  | 0.367   |
| Agree  | 1105 (79.3)  | 4696 (80.4)  |         |
| Disagree   | 288 (20.7)   | 1145 (19.6)  |         |
| Missing  | 47   | 131  |         |
| 5. The management listens and responds to employee concerns  |  |  | 0.049   |
| Agree  | 530 (37.4)   | 2042 (34.6)  |         |
| Disagree   | 886 (62.6)   | 3852 (65.4)  |         |
| Missing  | 24   | 78   |         |
| Emotional exhaustion   |  |  | 0.261   |
| Low (0–16)   | 514 (36.0)   | 2029 (34.2)  |         |
| Moderate (>16–25)  | 450 (31.6)   | 1912 (32.3)  |         |
| High (>25)   | 462 (32.4)   | 1985 (33.5)  |         |
| Missing  | 14   | 46   |         |
| Mean (SD)  | 21.2 (10.5)  | 21.5 (10.3)  |         |
| Depersonalisation  |  |  | <0.001  |
| Low (0–1.25)   | 530 (37.2)   | 1847 (31.2)  |         |
| Moderate (2–4)   | 456 (32.0)   | 1831 (30.9)  |         |
| High (>4)  | 440 (30.9)   | 2240 (37.9)  |         |
| Missing  | 14   | 54   |         |
| Mean (SD)  | 4.0 (4.6)  | 4.6 (4.8)  |         |
| Personal accomplishment  |  |  | 0.107   |
| Low (0–38)   | 480 (33.7)   | 2140 (36.2)  |         |
| Moderate (>38–43)  | 479 (33.7)   | 2030 (34.3)  |         |
| High (>43)   | 464 (32.6)   | 1841 (29.5)  |         |
| Missing  | 17   | 61   |         |
| Mean (SD)  | 40.0 (5.8)   | 39.7 (5.7)   |         |
| Combined burnout scales  |  |  | 0.091   |
| Low  | 1099 (77.2)  | 4444 (75.0)  |         |
| High   | 325 (22.8)   | 1479 (25.0)  |         |
| Missing  | 16   | 49   |         |

study using the same instruments but comparing SCC and GCC, we find a difference in burnout only on the sub-scale related to higher levels of depersonalization – that is, cynicism, detachment, and indifference – among RNs caring for cancer patients on non-specialized units. Intention to leave differs in that RNs in SCC tend to report more intention to switch workplaces, whereas RNs in GCC tend to report more intention to leave the profession altogether. Shang et al.'s conclusion may also be relevant in regard to our data, suggesting that these differences might be explained by better work environments in oncology units. While we have no detailed data about this, our clinical experience suggests that staffing levels and skill mix may be higher on specialized oncology units, and clinical supervision or preceptor programs more likely to be found.

**Table 3**

Descriptive characteristics and distribution of outcome variables of interest by intention to leave in the sample of RNs with cancer patients from RN4CAST (Sweden, 2010).

| Variable   | Intention to leave |                 | p-value             |
|--|--------------------|-----------------|---------------------|
|  | Yes<br>N (row %)   | No<br>N (row %) |                     |
| Males  | 167 (37.9)         | 274 (62.1)      | 0.119               |
| Females  | 2359 (34.2)        | 4532 (65.8)     |                     |
| Age group (range: 22–67 yrs)   |                    |                 |                     |
| 22–29  | 553 (37.6)         | 918 (62.4)      |                     |
| 30–39  | 964 (38.9)         | 1517 (61.1)     |                     |
| 40–49  | 561 (32.9)         | 1143 (67.1)     |                     |
| 50–59  | 359 (29.1)         | 876 (70.9)      |                     |
| 60–67  | 89 (20.2)          | 352 (79.8)      |                     |
| Mean age (SD)  | 38.6 (10.1)        | 40.9 (11.2)     | <0.001              |
| Fulltime   | 1527 (35.1)        | 2822 (64.9)     | 0.161               |
| Part time  | 992 (33.5)         | 1967 (66.5)     |                     |
| Urban hospital   | 739 (37.5)         | 1233 (62.5)     | 0.001               |
| Rural hospital   | 1787 (33.3)        | 3573 (66.7)     |                     |
| University hospital  | 916 (35.4)         | 1672 (64.6)     | 0.210               |
| Non-university hospital  | 1610 (33.9)        | 3134 (66.1)     |                     |
| Small hospital   | 473 (30.7)         | 1068 (69.3)     | <0.001 <sup>a</sup> |
| Medium sized hospital  | 833 (34.2)         | 1605 (65.8)     | 0.001 <sup>b</sup>  |
| Large hospital   | 1220 (36.4)        | 2133 (63.6)     |                     |
| ≤2 years in profession   | 465 (37.2)         | 784 (62.8)      | 0.023               |
| >2 years in profession   | 2048 (33.9)        | 4000 (66.1)     |                     |
| Mean number of years (SD)  | 9.7 (9.0)          | 11.9 (10.7)     | <0.001              |
| Adequate cancer care education   |                    |                 |                     |
| To high degree   | 469 (27.5)         | 1237 (72.5)     | <0.001              |
| Partly or to low degree  | 2014 (36.7)        | 3471 (63.3)     |                     |
| 1. The supervisory staff is supportive of nurses   |                    |                 | <0.001              |
| Agree  | 805 (19.9)         | 3233 (80.1)     |                     |
| Disagree   | 1687 (53.1)        | 1493 (46.9)     |                     |
| 2. The nurse manager is a good manager and leader  |                    |                 | <0.001              |
| Agree  | 1378 (26.3)        | 3860 (73.7)     |                     |
| Disagree   | 1115 (55.6)        | 891 (44.4)      |                     |
| 3. You receive praise and recognition for a job well done  |                    |                 | <0.001              |
| Agree  | 744 (22.5)         | 2558 (77.5)     |                     |
| Disagree   | 1758 (44.5)        | 2192 (55.5)     |                     |
| 4. The nurse manager backs up the nursing staff in decision making, even if the conflict is with a physician |                    |                 | <0.001              |
| Agree  | 1733 (30.2)        | 4010 (69.8)     |                     |
| Disagree   | 734 (51.8)         | 684 (48.2)      |                     |
| 5. The management listens and responds to employee concerns  |                    |                 | <0.001              |
| Agree  | 416 (16.4)         | 2127 (83.6)     |                     |
| Disagree   | 2080 (44.3)        | 2614 (55.7)     |                     |
| Emotional exhaustion   |                    |                 | <0.001              |
| Low (0–16)   | 383 (15.1)         | 2149 (84.9)     |                     |
| Medium (>16–25)  | 690 (29.4)         | 1655 (70.6)     |                     |
| High (>25)   | 1448 (59.5)        | 987 (40.5)      |                     |
| Mean (SD)  | 27.5 (10.2)        | 18.3 (8.9)      |                     |
| Depersonalisation  |                    |                 | <0.001              |
| Low (0–1.25)   | 583 (24.7)         | 1777 (75.3)     |                     |
| Medium (2–4)   | 692 (30.4)         | 1584 (69.6)     |                     |
| High (>4)  | 1239 (46.4)        | 1429 (53.6)     |                     |
| Mean (SD)  | 6.1 (5.7)          | 3.7 (4.0)       |                     |
| Personal accomplishment  |                    |                 | <0.001              |
| Low (0–38)   | 1142 (43.9)        | 1457 (56.1)     |                     |
| Moderate (>38–43)  | 862 (34.5)         | 1637 (65.5)     |                     |
| High (>43)   | 509 (23.2)         | 1687 (76.8)     |                     |
| Mean (SD)  | 38.3 (5.9)         | 40.5 (5.5)      |                     |
| Combined burnout scales  |                    |                 | <0.001              |
| Low  | 1399 (25.4)        | 4116 (74.6)     |                     |
| High   | 1119 (62.4)        | 673 (37.6)      |                     |

<sup>a</sup> Small hospital vs. medium and large.

<sup>b</sup> Large hospital vs. medium and small.

**Table 4**

Prevalence ratios (PR) and 95% confidence intervals (CI) for intention to leave among RNs by leadership variables, stratified by proportion of cancer patients.

| Leadership items  | All RNs with cancer patients<br>(n = 7412) | Proportion of cancer patients                     |   |
|---|--|---|---|
|   |  | SCC group<br>(≥80% cancer patients)<br>(n = 1440) | GCC group<br>(10–70% cancer patients)<br>(n = 5972) |
| 1. The supervisory staff is supportive of nurses<br>Disagree vs. agree  | 2.66 (2.48–2.85)                           | 2.90 (2.48–3.40)                                  | 2.61 (2.41–2.82)                                    |
| 2. The nurse manager is a good manager and leader<br>Disagree vs. agree   | 2.11 (1.99–2.24)                           | 2.10 (1.83–2.41)                                  | 2.12 (1.98–2.26)                                    |
| 3. You receive praise and recognition for a job well done<br>Disagree vs. agree   | 1.98 (1.84–2.12)                           | 1.83 (1.57–2.14)                                  | 2.02 (1.86–2.19)                                    |
| 4. The nurse manager backs up the nursing staff in<br>decision making, even if the conflict is with a physician<br>Disagree vs. agree | 1.72 (1.61–1.83)                           | 1.75 (1.52–2.02)                                  | 1.71 (1.59–1.83)                                    |
| 5. The management listens and responds to employee concerns<br>Disagree vs. agree   | 2.71 (2.47–2.97)                           | 2.57 (2.10–3.13)                                  | 2.75 (2.47–3.06)                                    |

The lack of clinical preceptor programs is particularly important to consider in light of the extent to which RNs in both the SCC and GCC group report that their education in cancer care is not adequate for the job they actually do. While this varied significantly by group with over twice the proportion of RNs in SCC highly endorsing that their education was adequate, only 20–40% of RNs reporting adequate education in cancer care is a cause for great concern. While a limitation may be that we have not been able to access formal post-graduate education in cancer, it is not self-evident that this would be a better indicator of a de facto sense of adequate preparation for the work actually done in one's present job. More data about what gaps in knowledge are perceived might thus be an important step for improving patient care.

The relationship between length of time in practice and adequate education in cancer care is also an interesting one, as RNs with longer experience also to a greater extent report adequate education. As a bachelor's degree became norm for Swedish nursing licensure in 2007, it is unclear if this relationship represents greater knowledge demands from younger RNs, is an indicator that the level of in-house and/or specialist education is lower than was previously the case, or represents learning by experience rather than in taught courses. It may also indicate the increasing complexity of cancer care today. Future research using more in-depth qualitative approaches could further explore the association between education and experience (length of time in practice) and the role these play for work satisfaction.

However, it is not only RNs with less experience and a sense of inadequate education who are prone to burnout and have an increased likelihood of reporting intention to leave. RNs who are more experienced and report their cancer care education as

adequate, but who are dissatisfied with leadership are also a group of great concern, both in SCC and GCC. We had assumed that there would be a stronger association between poor leadership and intention to leave among those who did not perceive their cancer care education to be adequate, but we found the opposite, i.e. a stronger association between leadership and intention to leave among those who perceived that they had adequate cancer care education. Interestingly, Bakker et al. (2010) also showed, in a survey based on over 600 RNs in cancer care, that RNs with a master's degree reported a stronger intention to leave compared with their colleagues with undergraduate nursing education on bachelor or graduate level.

We had also expected that those RNs who had only been in the profession for a short time would be more vulnerable to bad leadership, and would thus report greater intention to leave. Even here we found evidence contradicting this assumption, i.e. the risk of intending to leave with a more negative perception of leadership increased with increasing number of years in the profession. Both these findings are additional causes for concern, as they indicate a risk that the most experienced and qualified RNs in cancer care may be difficult to retain at a workplace with poor leadership. This can be seen even in light of Cummings et al. (2008) finding that staffing rates, leadership and nurse/physician relationships were all important factors for job satisfaction for RNs in oncology settings, although they did not examine the relationship to intention to leave.

These results are based on a large amount of data, generated using well-validated instruments. All acute care hospitals in Sweden are represented, and as nearly all are part of the public health care system, owned and operated by regional authorities with a

**Table 5**

Prevalence ratios (PR) and 95% confidence intervals (CI) for intention to leave among RNs with cancer patients by leadership variables stratified by length of time in practice and perceived adequacy of cancer care education.

| Leadership items  | Length of time in practice |                  | Adequacy of cancer care education |                  |
|---|----------------------------|------------------|-----------------------------------|------------------|
|   | ≤2 years                   | >2 years         | High degree                       | Low degree       |
| 1. The supervisory staff is supportive of nurses<br>Disagree vs. Agree  | 2.28 (1.95–2.67)           | 2.76 (2.55–2.98) | 3.07 (2.61–3.62)                  | 2.51 (2.33–2.72) |
| 2. The nurse manager is a good manager and leader<br>Disagree vs. Agree   | 1.87 (1.63–2.14)           | 2.18 (2.04–2.33) | 2.39 (2.06–2.77)                  | 2.03 (1.90–2.16) |
| 3. You receive praise and recognition for a job well done<br>Disagree vs. Agree   | 1.87 (1.59–2.19)           | 2.01 (1.85–2.17) | 2.13 (1.80–2.51)                  | 1.89 (1.75–2.05) |
| 4. The nurse manager backs up the nursing staff in decision<br>making, even if the conflict is with a physician<br>Disagree vs. Agree | 1.44 (1.23–1.69)           | 1.78 (1.66–1.91) | 2.04 (1.75–2.38)                  | 1.64 (1.53–1.76) |
| 5. The management listens and responds to employee concerns<br>Disagree vs. Agree   | 2.20 (1.81–2.66)           | 2.89 (2.60–3.22) | 2.98 (2.41–3.69)                  | 2.59 (2.33–2.88) |

**Table 6**  
Effect of burnout on the association between leadership on intention to leave. Bivariate, adjusted and stratified prevalence ratios (PR) and 95% confidence intervals (CI) for intention to leave among RNs with cancer patients by leadership variables.

| Leadership items  | Bivariate PR<br>(95% CI) | Adjusted PR<br>(95% CI) <sup>a</sup> | Bivariate PR (95% CI)<br>Stratified by burnout |                  |
|---|--------------------------|--------------------------------------|--|------------------|
|   |                          |                                      | Lower  | Higher           |
| 1. The supervisory staff is supportive of nurses<br>Disagree vs. agree  | 2.66 (2.48–2.85)         | 2.19 (2.04–2.36)                     | 2.70 (2.46–2.96)                               | 1.64 (1.49–1.81) |
| 2. The nurse manager is a good manager and leader<br>Disagree vs. agree   | 2.11 (1.99–2.24)         | 1.70 (1.61–1.81)                     | 2.34 (2.14–2.55)                               | 1.39 (1.29–1.49) |
| 3. You receive praise and recognition for a job well done<br>Disagree vs. agree   | 1.98 (1.84–2.12)         | 1.63 (1.51–1.75)                     | 1.90 (1.73–2.09)                               | 1.34 (1.22–1.48) |
| 4. The nurse manager backs up the nursing staff in decision making,<br>even if the conflict is with a physician<br>Disagree vs. agree | 1.72 (1.61–1.83)         | 1.37 (1.29–1.45)                     | 1.91 (1.74–2.10)                               | 1.17 (1.08–1.26) |
| 5. The management listens and responds to employee concerns<br>Disagree vs. agree   | 2.71 (2.47–2.97)         | 2.26 (2.05–2.48)                     | 2.60 (2.31–2.93)                               | 1.70 (1.48–1.96) |

<sup>a</sup> Adjusted for combined burnout variable.

principle of equal access of care to all, these data are not subject to the wide variations found in studies in many other countries. The high response rate may be related to our sampling strategy through the Swedish Association of Health Care Professionals, in which only union members were included. While this is a potential limitation it should be emphasized that more than 80% of clinically active RNs in Sweden are members of this organization and all acute care hospitals are represented in the sample; other forms of recruitment might have increased, as well as altered selection bias.

## Conclusions

RNs working with cancer patients in acute care hospitals appear to have much in common in terms of the challenges and patients they meet, whether they work in SCC or GCC, although in these data those working in GCC seem to be more vulnerable in terms of less adequate education, a tendency to perceive less support from leadership, and increased depersonalization. While one third of RNs in cancer care reporting intention to leave does not translate to one third actually leaving, as Takase (2010) concludes, one key to reducing turnover is to detect early signs, some of which are pointed to here. Leadership again proves to be a crucial area, and one that can be improved.

Finally, we are well aware of the challenges facing nursing leaders in cancer care today, and that reported dissatisfaction may not only reflect incompetent leadership. RNs in leadership roles in cancer care have challenging positions especially in times of economic constraints; they need to balance individual RN's needs and preferences and provide support, while at the same time maintaining overarching responsibility for safe and high quality patient care and development of health care for the future.

## Recommendations for practice

Our findings suggest that RNs' perception of leadership is an important factor to consider in efforts to retain RNs in cancer care, not least among RNs with longer work experience in nursing and among those who perceive having adequate cancer care education. Other groups to focus on for retention are those who are new in the profession, who do not perceive having adequate cancer care education, and those with higher burnout-related scores.

## Conflict of interest statement

None declared.

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